

1. A synthetic oligonucleotide having a nucleotide sequence corresponding to from about 12 nucleotides to all of the nucleotide sequence of a genetic suppressor element (GSE) produced according to a method for identifying genetic suppressor elements that confer a selectable phenotype upon a eukaryotic cell, wherein the method comprises the steps of:
  - (a) synthesizing randomly fragmented cDNA prepared from the total mRNA of a cell to yield DNA fragments;
  - (b) transferring the DNA fragments to an expression vector to yield a genetic suppressor element library, wherein each of the DNA fragments is operatively linked to a protein translation initiation codon, and wherein the expression vector expresses the DNA fragments in a living eukaryotic cell that is capable of exhibiting the selectable phenotype;
  - (c) genetically modifying living cells by introducing the genetic suppressor element library into the living eukaryotic cells;
  - (d) isolating or enriching for genetically modified living eukaryotic cells containing genetic suppressor elements that confer the selectable phenotype by selecting cells that express the selectable phenotype, and;
  - (e) obtaining the genetic suppressor element from the genetically modified cells.
2. A synthetic oligonucleotide according to claim 1, wherein the genetic suppressor element is an antisense-oriented genetic suppressor element encoding an RNA molecule.
3. A synthetic oligonucleotide having a nucleotide sequence corresponding to from about 12 nucleotides to all of the nucleotide sequence encoded by a genetic suppressor element (GSE) produced according to a method for identifying genetic suppressor elements corresponding to genes that when suppressed by GSEs, confer a selectable phenotype upon a eukaryotic cell, wherein the method comprises the steps of:
  - (a) obtaining genomic DNA or a total mRNA population from the cells;
  - (b) randomly fragmenting the genomic DNA or synthesizing randomly fragmented cDNA from the total mRNA to produce a population of randomly fragmented DNA fragments;

- (c) ligating the randomly fragmented DNA fragments to synthetic adaptors to produce amplifiable random DNA fragments;
- (d) amplifying the amplifiable random DNA fragments to provide a mixture of amplified DNA fragments;
- 5 (e) cloning the mixture of amplified DNA fragments into a suitable expression vector to produce a random fragment expression library;
- (f) transferring the random fragment expression library into appropriate target cells;
- (g) isolating or enriching for genetically modified living cells containing a selectable phenotype-conferring genetic suppressor element by selecting or enriching for cells that
- 10 express the selectable phenotype; and
- (h) recovering the GSE from the target cell having the selectable phenotype.

4. A synthetic oligonucleotide according to claim 3, wherein the genetic suppressor element is a antisense-oriented genetic suppressor element encoding an RNA molecule.

5. A synthetic oligonucleotide having a nucleotide sequence comprising from about 12 nucleotides to all of the nucleotides comprising a GSE produced according to a method for identifying genetic suppressor elements that confer upon a eukaryotic cell resistance to one or more chemotherapeutic drugs, wherein the method comprises the steps of:

- (a) obtaining random DNA fragments of a gene associated with sensitivity to chemotherapeutic drugs;
- (b) transferring the random DNA fragments to an expression vector to yield a genetic suppressor element library, wherein each of the random DNA fragments is operatively linked to a protein translation initiation codon, and wherein the expression vector is capable of expressing the DNA fragments in a living eukaryotic cell that is susceptible of inhibitory effects of a chemotherapeutic drug;
- (c) genetically modifying living eukaryotic cells by introducing the genetic suppressor element library into the living cells;

(d) isolating or enriching for genetically modified living cells containing chemotherapeutic drug resistance-conferring genetic suppressor elements by selecting cells in the presence of a chemotherapeutic drug, and;

(e) obtaining a genetic suppressor element from the genetically modified eukaryotic cells.

7. A synthetic oligonucleotide having a nucleotide sequence comprising from about 12 nucleotides to all of the nucleotides of a GSE identified by Seq. ID No. 1, 6-8, 11, 14 or 15.

8. A synthetic oligonucleotide according to Claim 1, wherein the selectable phenotype is resistance in a eukaryotic cell to one or more chemotherapeutic drugs, and wherein the GSE comprises a portion of a gene otherwise not recognized as being responsible for said selectable phenotype.

9. A synthetic oligonucleotide according to Claim 3, wherein the selectable phenotype is resistance in a eukaryotic cell to one or more chemotherapeutic drugs, and wherein the GSE comprises a portion of a gene otherwise not recognized as being responsible for said selectable phenotype.

10. A synthetic oligonucleotide having a nucleotide sequence corresponding to from about 12 nucleotides to all of the nucleotides of a genetic suppressor element (GSE) that is produced according to a method for identifying genetic suppressor elements that confer a selectable phenotype upon a eukaryotic cell, wherein the method comprises the steps of:

- (a) synthesizing randomly fragmented cDNA prepared from the total mRNA of a cell to yield DNA fragments;
- (b) transferring the DNA fragments to an expression vector to yield a genetic suppressor element library, wherein each of the DNA fragments is operatively linked to a protein

translation initiation codon, and wherein the expression vector expresses the DNA fragments in a living eukaryotic cell that is capable of exhibiting the selectable phenotype;

(c) genetically modifying living cells by introducing the genetic suppressor element library into the living eukaryotic cells;

(d) isolating or enriching for genetically modified living eukaryotic cells containing genetic suppressor elements that confer the selectable phenotype by selecting cells that express the selectable phenotype;

(e) obtaining the genetic suppressor element from the genetically modified cells,

wherein the GSE comprises a portion of a nucleic acid selected from the group consisting of nucleic acids identified by Seq. ID Nos. 1, 6-8, 11, 14 and 15, wherein said portion of the nucleic acid disrupts expression of a protein produced by the cell.